CLAIMS

What is claimed is:

1. A microwave oven to cook food comprising:

a magnetron to generate microwaves;

a cooking chamber to contain the food to be cooked using the generated microwaves;

a humidity detector to detect moisture formed as the food is cooked, said humidity detector being provided to receive air including the moisture which is exhausted from said cooking chamber and comprising first and second electrodes formed on a board and spaced apart from each other to form a gap therebetween into which portions of the exhausted air is received; and

a control unit to control said magnetron according to the moisture detected by said humidity detector.

2. The microwave oven according to claim 1, further comprising a current source that provides a direct current, wherein:

the board of said humidity detector comprises a non-conductive material,

the first and second electrodes comprise a conductive material disposed on the board in a pattern,

a first detection electrode is on a first end of the first electrode,

a first wire connects a second end of the first electrode with a said current source,

a second detection electrode is on a first end of the second electrode, and

a second wire connects a second end of the second electrode with said control unit.

3. The microwave oven according to claim 1, further comprising a current source that provides a direct current, wherein:

the board comprises a non-conductive material,

the first and second electrodes comprise a conductive material that are disposed on the board,

first detection electrodes formed on a first end of the first electrode,

a first wire to connect a second end of the first electrode with said current source that provides a direct current,

second detection electrodes on a first end of the second electrode to be adjacent to corresponding ones of the first detector electrodes to form corresponding gaps therebetween, and

a second wire to connect a second end of the second electrode with said control unit.

4. The microwave oven according to claim 2, further comprising a resistor and a capacitor, said resistor and said capacitor being each connected in parallel with the second wire and a ground.

5. The microwave oven according to claim 2, wherein said current source comprises one of said control unit and a direct current source.

6. The microwave oven according to claim 2, wherein the first and second detecting electrodes comprise the first and second electrodes layered with sequential layers of nickel and gold.

7. The microwave oven according to claim 2, wherein said humidity detector further comprises detecting slits to allow air to pass therethrough, where the detecting slits are formed above and below the first and second detecting electrodes.

8. The microwave oven according to claim 7, wherein the detecting slits have an area equal to or greater than twice an area of the first and second detecting electrodes.

9. The microwave oven according to claim 1, further comprising

attaching holes formed on a wall of said cooking chamber and the board, and

spacers,

wherein said humidity detector is mounted on the wall of said cooking chamber using said spacers inserted into said attaching holes.

10. The microwave oven according to claim 3, further comprising a resistor and a capacitor, said resistor and said capacitor being each connected in parallel with the second wire and a ground.

11. The microwave oven according to claim 3, wherein said current source comprises one of said control unit and a direct current source.

12. The microwave oven according to claim 3, wherein the first and second detecting electrodes comprise the first and second electrodes layered with sequential layers of nickel layer and of gold.

13. The microwave oven according to claim 3, wherein said humidity detector further comprises detecting slits to allow air to pass therethrough, where the detecting slits are formed above and below the first and second detecting electrodes.

14. The microwave oven according to claim 13, wherein the detecting slits have an area equal to or greater than twice an area of the first and second detecting electrodes.

15. The microwave oven according to claim 1, wherein the first and second electrodes are formed on the board and are spaced apart from each other at a predetermined interval.

16. A sensor to sense a liquid content in a gas, comprising:

a board;

a first electrode disposed on said board; and

a second electrode disposed on said board opposite said first electrode to form a gap therebetween, wherein

wherein the gas is received into the gap such that the liquid forms a conductive path between said first and second electrodes as to vary a resistance across the gap.

17. The sensor of claim 16, further comprising a non-conductive layer to form a bottom of the gap and which extends between sidewalls of the first and second electrodes.

18. The sensor of claim 17, wherein the non-conductive layer comprises one of a ceramic or polymer layer.

19. The sensor of claim 17, wherein said board comprises the non-conductive layer, and the liquid is deposited on said board so as to vary a resistance between said first and second electrodes.

20. The sensor of claim 17, wherein said board comprises a printed circuit board.

21. The sensor of claim 16, where said first and second electrodes further comprise first and second detection portions forming side walls of the gap.

22. The sensor of claim 21, wherein an amount of resistance between said first and second electrodes across the gap corresponds to cross sectional areas of the side walls exposed to the gas in the gap.

23. The sensor of claim 21, wherein a distance between the first and second detection portions is constant.

24. The sensor of claim 21, wherein an amount of resistance corresponds to an amount of the liquid in the gap, cross sectional areas of the side walls exposed to the gap, and a distance between the first and second detection portions across the gap.

25. The sensor of claim 21, wherein one of the first and second detection portions further comprise a protective layer to prevent corrosion due to the liquid.

26. The sensor of claim 25, wherein the protective layer comprises a layer of gold and a layer of nickel.

27. The sensor of claim 16, wherein:

said first electrode comprises first detection portions extending adjacent to each other, and

said second electrode comprises second detection portions, each of the second detection portions extending adjacent to a corresponding one of the first detection portions to define a corresponding gap therebetween.

28. The sensor of claim 27, wherein a non-conductive layer defines bottom surfaces to the corresponding gaps.

29. The sensor of claim 16, wherein said board comprises vents through which portions of the gas not received within the gap pass.

30. A humidity detection system to detect a liquid content in a gas, comprising:

a current source to provide a current;

a board;

a first electrode disposed on said board and which receives the current;

a second electrode disposed on said board opposite said first electrode to form a gap therebetween into which the gas is received; and

a detection unit in communication with said second electrode to detect an amount of resistance across the gap,

wherein the amount of resistance corresponds to an amount of the liquid in the gas received in the gap.

31. The humidity detection system of claim 30, wherein said current source and said detection unit comprise a humidity detector.

32. The humidity detection system of claim 30, wherein said current source is a separate unit from said detection unit.

33. The humidity detection system of claim 30, wherein said board comprises a non-conductive material and forms a bottom surface of the gap.

34. The humidity detection system of claim 33, wherein said board further comprises vents through which portions of the gas not received in the gap pass.

35. The humidity detection system of claim 33, wherein said board comprises a printed circuit board.

36. The humidity detection system of clam 30, further comprises a resistor and a capacitor connected in parallel between a ground and said second electrode.

37. The humidity detection system of claim 36, wherein said resistor has a resistance according to an amount of voltage of said current source.